

WHAT IS CLAIMED IS:

1. A liquid crystal display device having a microlens array provided on a luminous flux incidence side,

the liquid crystal display device comprising an optical compensation layer made of an inorganic material and having an optical axis inclined with respect to a liquid crystal panel surface, at least on one of a luminous flux incidence side and a luminous flux emission side of the liquid crystal panel.

2. The liquid crystal display device as claimed in claim 1, wherein the inorganic material forming the optical compensation layer is uniaxial crystal.

3. The liquid crystal display device as claimed in claim 2, wherein $\Delta n \cdot d$, which is the product of refractive index anisotropy Δ and thickness d of the inorganic material forming the optical compensation layer, is 640 nm or less.

4. The liquid crystal display device as claimed in claim 2, wherein the inorganic material forming the optical compensation layer is crystal or sapphire.

5. The liquid crystal display device as claimed in claim 4, wherein $\Delta n \cdot d$, which is the product of refractive index anisotropy Δ and thickness d of the inorganic material forming the optical compensation layer, is 640 nm or less.

6. The liquid crystal display device as claimed in claim 1, wherein the direction of projection of optical axis of the optical compensation layer to the liquid crystal panel surface is substantially parallel to at least one of the direction of projection of pre-tilt of liquid crystal molecules near a board surface on the luminous flux incidence side of the liquid crystal panel to the board surface and the direction of projection of pre-tilt of liquid crystal molecules near a board surface on the luminous flux emission side of the liquid crystal panel to the board surface.

7. The liquid crystal display device as claimed in claim 6, wherein when

refractive index anisotropy of the inorganic material forming the optical compensation layer and refractive index of a liquid crystal layer of the liquid crystal panel have the same sign, the optical axis of the optical compensation layer and the optical axis of the liquid crystal layer are inclined in opposite directions with respect to the liquid crystal panel surface.

8. The liquid crystal display device as claimed in claim 6, wherein when refractive index anisotropy of the inorganic material forming the optical compensation layer and refractive index of a liquid crystal layer of the liquid crystal panel have different signs, the optical axis of the optical compensation layer and the optical axis of the liquid crystal layer are inclined in the same direction with respect to the liquid crystal panel surface.

9. The liquid crystal display device as claimed in claim 1, wherein the optical compensation layer is provided on both the luminous flux incidence side and the luminous flux emission side of the liquid crystal panel, and

the direction of projection of optical axis of the optical compensation layers to the liquid crystal panel surface is substantially parallel to the direction of projection of pre-tilt of liquid crystal molecules near a board surface on the luminous flux incidence side of the liquid crystal panel to the board surface and the direction of projection of pre-tilt of liquid crystal molecules near a board surface on the luminous flux emission side of the liquid crystal panel to the board surface.

10. The liquid crystal display device as claimed in claim 1, wherein the optical compensation layer has an outer size equal to or larger than an effective display area of the liquid crystal panel.

11. The liquid crystal display device as claimed in claim 1, wherein the optical compensation layer is provided on a dustproof glass provided on the surface of the

liquid crystal panel.

12. The liquid crystal display device as claimed in claim 1, wherein the optical compensation layer is provided on a cover glass of the microlens array.

13. A liquid crystal display device having a microlens array provided on a luminous flux incidence side,

the liquid crystal display device comprising two optical compensation layers made of an inorganic material and having an optical axis inclined with respect to a liquid crystal panel surface, on a luminous flux incidence side of the liquid crystal panel.

14. An image display apparatus comprising:

a light source;

a liquid crystal display device having a microlens array provided on a luminous flux incidence side as a spatial light modulator;

an illuminating optical system for guiding a luminous flux emitted from a light source to the liquid crystal display device and thus illuminating the liquid crystal display device; and

an image-forming lens for forming an image of the liquid crystal display device;

the liquid crystal display device having an optical compensation layer made of an inorganic material and having an optical axis inclined with respect to a liquid crystal panel surface, at least on one of a luminous flux incidence side and a luminous flux emission side of the liquid crystal panel.

15. The image display apparatus as claimed in claim 14, wherein the inorganic material forming the optical compensation layer of the liquid crystal display device is uniaxial crystal.

16. The image display apparatus as claimed in claim 14, wherein $\Delta n \cdot d$, which is the product of refractive index anisotropy Δ and thickness d of the inorganic material forming the optical compensation layer of the liquid crystal display device, is 640 nm or less.

17. The image display apparatus as claimed in claim 15, wherein the inorganic material forming the optical compensation layer of the liquid crystal display device is crystal or sapphire.

18. The image display apparatus as claimed in claim 17, wherein $\Delta n \cdot d$, which is the product of refractive index anisotropy Δ and thickness d of the inorganic material forming the optical compensation layer of the liquid crystal display device, is 640 nm or less.

19. The image display apparatus as claimed in claim 14, wherein the direction of projection of optical axis of the optical compensation layer of the liquid crystal display device to the liquid crystal panel surface is substantially parallel to at least one of the direction of projection of pre-tilt of liquid crystal molecules near a board surface on the luminous flux incidence side of the liquid crystal panel to the board surface and the direction of projection of pre-tilt of liquid crystal molecules near a board surface on the luminous flux emission side of the liquid crystal panel to the board surface.

20. The image display apparatus as claimed in claim 19, wherein when refractive index anisotropy of the inorganic material forming the optical compensation layer of the liquid crystal display device and refractive index of a liquid crystal layer of the liquid crystal panel have the same sign, the optical axis of the optical compensation layer and the optical axis of the liquid crystal layer are inclined in opposite directions with respect to the liquid crystal panel surface.

21. The image display apparatus as claimed in claim 19, wherein when refractive index anisotropy of the inorganic material forming the optical compensation layer of the liquid crystal display device and refractive index of a liquid crystal layer of the liquid crystal panel have different signs, the optical axis of the optical compensation layer and the optical axis of the liquid crystal layer are inclined in the same direction with respect to the liquid crystal panel surface.

22. The image display apparatus as claimed in claim 14, wherein the optical compensation layer of the liquid crystal display device is provided on both the luminous flux incidence side and the luminous flux emission side of the liquid crystal panel, and

the direction of projection of optical axis of the optical compensation layers to the liquid crystal panel surface is substantially parallel to the direction of projection of pre-tilt of liquid crystal molecules near a board surface on the luminous flux incidence side of the liquid crystal panel to the board surface and the direction of projection of pre-tilt of liquid crystal molecules near a board surface on the luminous flux emission side of the liquid crystal panel to the board surface.

23. The image display apparatus as claimed in claim 14, wherein the optical compensation layer of the liquid crystal display device has an outer size equal to or larger than an effective display area of the liquid crystal panel.

24. The image display apparatus as claimed in claim 14, wherein the optical compensation layer of the liquid crystal display device is provided on a dustproof glass provided on the surface of the liquid crystal panel.

25. The image display apparatus as claimed in claim 14, wherein the optical compensation layer of the liquid crystal display device is provided on a cover glass of the microlens array.

26. An image display apparatus comprising:

a light source;

a liquid crystal display device having a microlens array provided on a luminous flux incidence side as a spatial light modulator;

an illuminating optical system for guiding a luminous flux emitted from a light source to the liquid crystal display device and thus illuminating the liquid crystal display device; and

an image-forming lens for forming an image of the liquid crystal display device;

the liquid crystal display device having two optical compensation layers made of an inorganic material and having an optical axis inclined with respect to a liquid crystal panel surface, on a luminous flux incidence side of the liquid crystal panel.